

REMARKS

Claims 1, 3, 9 to 12, 14, and 19 to 33 are pending in the application, of which claims 1, 10, 19 and 32 are independent. Favorable reconsideration and further examination are respectfully requested.

In the Office Action, all of the claims were rejected under 35 U.S.C. §103 over U. S. Application No. 2002/0049036 (Bullock) in view of U. S. Patent Nos. 6,522,640 (Liebenow), 6,147,979 (Michel) and 5,955,921 (Ide). As shown above, Applicants have amended the claims to more define the invention more clearly. In view of these amendments, withdrawal of the art rejection is respectfully requested.

Each of independent claims 1, 10, 19 and 32 specifies that the base unit comprises an automatic gain control circuit which receives a composite signal that is based on an original signal from a telephone line and an echo signal, and which generates a data signal from the composite signal by maintaining a level of the composite signal within a predetermined linear amplification region of a transmission channel (e.g., RF channel) over which the data signal is, or can be, transmitted. The applied art is not understood to disclose or to suggest at least these features of claims 1, 10, 19 and 32.

More specifically, Liebenow, Bullock and Michel were not cited for, nor do they disclose, an automatic gain control (AGC) circuit. Ide, however, was said to disclose an AGC circuit. In this regard, one purpose of the AGC circuit in the invention is to reduce nonlinear distortion on a transmission channel (e.g., a radio frequency (RF) channel) by keeping voltage excursions of the (e.g., V.90) data signal within the predetermined linear

amplification region of the channel. In one implementation, the transmission channel includes (but is not limited to) a frequency modulation (FM) deviator to produce FM modulation of a V.90 baseband signal, intermediate frequency (IF) amplifiers, frequency mixers, RF amplifiers, IF and RF filters, and a limiter-discriminator to demodulate the FM signal back to baseband (e.g., V.90). In practice most nonlinear distortion is caused by the FM deviator and discriminator and, to a lesser degree, by the IF/RF filters.

Applicants respectfully disagree with the characterization, in the Office Action, of the Ide AGC circuit (Figs. 16 and 17). In this regard, Ide's circuit is used in signal amplifiers/regenerators for fiber optic cables that transmit on-off pulses. These pulses typically arrive substantially distorted at the point of regeneration and the amplification/regeneration process is substantially nonlinear. Amplification/regeneration includes comparing the arriving pulses with a threshold voltage in order to decide whether a pulse is present (a one) or absent (a zero). This comparison is made in the limiter circuit of Ide's Fig. 16. In order to achieve effective regeneration, the threshold level has to be exactly half-way between the peak and bottom levels of the arriving pulses. Ide's AGC circuit is part of the overall circuit that achieves such regeneration.

Ide's AGC circuit does not generate a data signal from a composite signal by maintaining a level of the composite signal within a predetermined linear amplification region of a transmission channel (e.g., RF channel) over which the data signal is, or can be transmitted. Furthermore, as noted in column 30, lines 60 to 65, Ide's AGC circuit is used in the receiving portion of the optical communication system. By contrast, the AGC circuit of the claims is used in a base station (e.g., a transmitting portion) of a modem. As

such, Ide's AGC circuit could not possibly produce the same benefits as the ACG circuit of the claims, i.e., to reduce nonlinear distortion on a transmission channel.

For at least the foregoing reasons, claims 1, 10, 19, and 32 are believed to be patentable over the applied art. Applicants, however, also take this opportunity to point out further differences between the claimed inventions and the art.

In this regard, Applicants note that the FM modulation method of Bullock produces 128-level frequency shift modulation (FSK) when the now predominant V.90 dial-up data transmission format is used. The modulation method proposed by Bullock would not work in a wireless modem because of an unwanted echo, which is described in the prior art (e.g., U.S. Patent No. 5,930,719 (Babitch)). An AGC of the type claimed or an enhanced echo canceller, such as that proposed by Babitch, would need to be used in order to implement Bullock's modulation method. Applicants also note that Bullock specifically proposes the use of the 49 MHz radio channel with its low 20 kHz channel bandwidth. This will seriously restrict the quality of data transmission compared to the wider bandwidths available at 900 MHz, which may be used to transmit data wirelessly.

Regarding the claimed switch for selecting a type of medium over which to transmit and receive data signals, Applicants note that Fig. 2 of Liebenow shows two circuits, one to connect over a wireless radio link, the other to connect over a telephone wire with an RJ-11 jack. Liebenow, however, does not describe a switch and/or method to operate this switch. While Liebenow may use a switch of some sort to select between its modes of operation at a branch point between circuits 24 and 26 (Fig. 2), there is no disclosure whatsoever in Liebenow that the switch is triggered automatically in response to

presence or absence of a wired connection. In addition, it is noted that Liebenow's switching point is not easily accessible in today's modems, which combine circuits 24 and 26 on an integrated circuit called "data pump". Liebenow would have to break up a standard modem circuit in order to implement its rather complicated scheme.

Thus, for the additional reasons noted above, the claims are believed to define patentable features of the invention. In this regard, each of the dependent claims is believed to define patentable features of the invention. Each dependent claim partakes of the novelty of its corresponding independent claim and, as such, all dependent claims have not been discussed specifically herein.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney can be reached at the address shown below. All telephone calls should be directed to the undersigned at 617-521-7896.


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Respectfully submitted,

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